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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/639,962	08/16/2000	Wilhelm Frank	GR 97 P 2065 D	6118

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EXAMINER
DOUGHERTY, THOMAS M

ART UNIT	PAPER NUMBER
2834	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/639,962	Applicant(s) FRANK, ET AL.	
	Examiner Thomas M. Dougherty	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 July 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi (US 5,239,223) in view of Crawley et al.(US 4,471,256). Miyoshi shows (fig. 2) a piezoelectric (cl. 1) assembly, comprising an elastic hollow body (5) with an elasticity; a top cover plate (3) connected to said hollow body by one of welding (col. 4, ll. 30-34) and flanging, and a bottom cover plate (6) connected to said hollow body (5); and a piezoelectric actuator with a permanent and fixed prestress (col. 5, ll. 23-34 and col. 7, ll. 15-37). He does not show his piezoelectric actuator being contacted by said hollow body. Crawley et al. show (e.g. fig. 3a) a piezoelectric (see title) assembly, comprising: an elastic hollow body (not numbered) with an elasticity; a top cover plate (51a) connected to said hollow body by one of welding (col. 4, ll. 30-34) and flanging, and a bottom cover plate (52b) connected to said hollow body; and a piezoelectric actuator (52) with a permanent and fixed said piezoelectric actuator being contacted by said hollow body, said top cover plate, and said bottom cover plate. The elasticity of the hollow body is matched to a desired manner of operation of said piezoelectric assembly. See for example figures 5A-5C. Said piezoelectric body has an extension direction and is inserted into said hollow body in said extension direction between said cover plates

for prestressing said actuator. Prestress of said piezoelectric actuator corresponds with said elasticity of said hollow body. Said piezoelectric actuator has a shape and said hollow body is matched in shape to said shape of said piezoelectric actuator. Crawley et al. don't show connection of the hollow body by one of welding and flanging. It would have been obvious to one having ordinary skill in the art to connect the hollow body of Crawley by one of welding or flanging, as is taught by Miyoshi in order to prevent unintentional loosening of the fit.

Claims 1, 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onishi (JP 55-134990) in view of Crawley et al.(US 4,471,256). Given the invention of Crawley as noted above, he doesn't show a seamed hollow body. Onishi shows (figs. 2 and 3) a piezoelectric (see ABSTRACT) assembly, comprising: an elastic hollow body (6) with an elasticity; a top cover plate (4) connected to said hollow body by one of welding and flanging (6e), and a bottom cover plate (5) connected to said hollow body (6); and a piezoelectric actuator (1, 1') said piezoelectric actuator (1, 1') being contacted by said hollow body (6), said top cover plate (4), and said bottom cover plate (5). Said said hollow body (6) has a given length, two butting edges (of 6a, 6b) and at least one connecting seam (see translated PURPOSE and CONSTITUTION) connecting said two butting edges to one another and extending entirely over said given length. Said hollow body (6) is made of at least one plate (6a, 6b) formed into said hollow body (6) and then fixed by at least one connecting seam. While the element is understress , the form it takes is not explicit. It would have been obvious to one having ordinary skill in the art to employ the casing design of Onishi in the device of Crawley et

al. at the time of his invention since this is clearly a way to insure an insulated device as Onishi notes. Such a design would reduce the likelihood of unintentional and undesirable short circuits due to particulate matter.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi (US 5,239,223) and Crawley et al.(US 4,471,256) in view of Kaji (US 4,354,131) or Onishi (JP 55-134990) and Crawley et al.(US 4,471,256) in view of Kaji (US 4,354,131). Given the combined invention of Miyoshi and Crawley as noted above, or alternatively the combined invention of Onishi and Crawley as noted above, they do not show their hollow body with two butting edges associated with one another and disposed in the longitudinal direction, wherein the butting edges are not connected to one another. Kaji shows (figs. 1 and 2) a piezoelectric (col. 3, ll. 37-39) assembly, comprising: an elastic hollow body (49). He further shows said hollow body (49) having a longitudinal direction and two butting edges associated with one another and disposed in said longitudinal direction, said butting edges not being connected to one another. He does not show a top cover plate connected to said hollow body, or a bottom cover plate connected to said hollow body. His piezoelectric actuator does not have an extension direction, said actuator is not inserted into said hollow body in said extension direction between said cover plates for prestressing. It would have been obvious to one having ordinary skill in the art to employ a hollow body such as is shown by Kaji in a combined device like Miyoshi's and Crawley's, or alternatively, like Onishi's and Crawley's, at the time of their inventions, in order to allow for electrical connections

through the gap created by the two non-connected butting edges in the housing such as is taught by Kaji at column 4, lines 37-45.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi (US 5,239,223) and Crawley et al.(US 4,471,256) in view of Takahashi (US 4,943,004) or Onishi (JP 55-134990) and Crawley et al.(US 4,471,256) in view of Takahashi (US 4,943,004). Given the combined invention of Miyoshi and Crawley as noted above, or alternatively the combined invention of Onishi and Crawley as noted above, Miyoshi Given the combined inventions of either Miyoshi and Crawley or Onishi and Crawley as noted above, they do not show their hollow bodies with apertures which at least partially determine an elasticity of said hollow bodies. Takahashi shows (fig. 1) a piezoelectric (cl. 1) assembly, comprising: an elastic hollow body (32); a top cover plate (32a) connected to said hollow body (32), and a bottom cover plate (41) connected to said hollow body (32); and a piezoelectric actuator (33). His hollow body (32) has apertures (40) which at least partially determine an elasticity (col. 3, ll. 8-12) of said hollow body (32). It is not clear that Takahashi connects his top cover plate by one of welding and flanging. It would have been obvious to one having ordinary skill in the art to secure the hollow body of Takahashi to his cover plates by welding since this is a known method of securing components as is taught by Miyoshi, or by flanging, such as is taught by Onishi, and the still allows for the piezoelectric actuator to be caused to expand and/or contract within the housing. Additionally, welding and/or flanging are easy manufacturing methods involving minimal steps.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Direct inquiry concerning this action to Examiner Dougherty at (703) 308-1628.

tmd

tmd

August 6, 2002

Thomas M. Dougherty

THOMAS M. DOUGHERTY
PRIMARY EXAMINER
GROUP ~~2100~~ 2800